

BORUN, G.M.; LUTSET, Z.S.

Device for determining the path and depth of placement of pipelines.  
Ved.1 san.tekh.no.9:8-12 S '56. (MIRA 9:10)  
(Pipelines)

BORUN, G.M.; POLYAKOV, Z.I.

Degree of rarefaction in the zone of ultrasonic cutting.  
Akust. zhur. 9 no.2:231-232 '63. (MIRA 16:4)

1. Mezhotraslevoy nauchno-issledovatel'skiy proyektno-tekhnologicheskiy institut avtomatizatsii i mekhanizatsii mashinostroyeniya, Chelyabinsk.  
(Ultrasonic waves—Industrial applications)

BORUN, G.M., inzh.; POLYAKOV, Z.I., inzh.

Effect of air exhaustion in the cutting area on the ultrasonic  
metal cutting. Vest.mashinostr. 43 no.8:74-76 Ag '63.  
(MIRA 16:9)

(Ultrasonic metal cutting)

29(0)

PHASE I BOOK EXPLOITATION POL/2607

Borun, Krzysztof

Księżyc zdobyty; o rakietach księżycowych i sztucznych planetach  
(The Moon Is Conquered; On Moon Rockets and Artificial Planets)  
[Warsaw] Wiedza Powszechna i Sztandar Młodych, 1959. 107 p. (Series:  
Atomium) 20,253 copies printed.

Ed.: F. Sawicka; Tech. Ed.: W. Kosinski.

PURPOSE: This book is a popularized presentation written for the  
general reader.

COVERAGE: The author gives some basic data on the Moon, its distance  
from the Earth, and how it could be reached. He explains the  
principles of operation of artificial satellites and interplanetary  
rockets. He shows silhouettes of 6 Soviet ballistic missiles  
(T-1, T-2, T-3, T-3A, T-3, T-4A) and a photograph of a model of  
a Soviet Moon rocket which he suggests might have been used in  
the launching of the first Lunik. He also includes photographs

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The Moon (Cont.)

POL/2607

of the frame of the Moon rocket instrument container on its mounting carriage, of the frangible sphere with the Soviet insignia carried by the artificial planet, and of several US rockets. The Soviet launching of January 2, 1959 is described in some detail. In the last chapter the author gives his views on the probable future development of interplanetary travel. No personalities are mentioned. There are 46 references: 29 Polish, 8 Soviet, 6 English, 2 German, and 1 Czech.

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The Moon (Cont.)

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The Moon (Cont.)

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AVAILABLE: Library of Congress

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IS/jb  
11-24-59

P/048/63/000/00S(16)/001/001  
A056/A126

AUTHOR: Boruf, Krzysztof

TITLE: Predictions on Astronautics

PERIODICAL: Astronautyka, no. S, 1963, 22 - 23

TEXT: The author states that if, ten years ago, the prophecies concerning the future of astronautics were rather pessimistic, the first results achieved induced now too much optimism - an attitude which the specialists refuse to follow today. During the last five years, considerable improvement has marked rocket engineering and astronautics, but the most important fact is that those sciences have become practical, systematized. The problems to be solved are innumerable, thousands of scientists and technicians must experiment, calculate, test during months or years to allow one man to get to the Moon and return. Building a rocket sufficiently powerful is not enough, we must know all about the conditions of the trip and of the surface of the planet - about the Van Allen belts and the "death belt" (pas śmierci) originated by the US atomic explosions. Adding to this the time necessary to master the difficulties of the operation "rendez-vous", of building the

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Predictions on Astronautics

P/048/63/000/00S(16)/001/001  
A056/A126

ship, to bring into orbit the fuel, etc, it becomes clear the first man will not land on the Moon before 1966/67. Presenting himself not as a technician, but rather as a science-fiction writer, the author gives his own predictions: 1963: Photos of Mars' surface (Mars I); Landing of an automatic station on the Moon - Crossing of the radiation belts by astronauts - Flight of multipassenger ships - First attempts of "rendez-vous" - Artificial satellites equipped with telescopes - New probes in the direction of Mars and Venus. 1964 24-hour telecommunication satellites - Satellites orbiting at low altitude around the Moon. - A Soviet astronaut around the Moon - Probes in the direction of Mercury or Jupiter - First attempts of constructing an orbital station around Earth. 1965 Attempts of landing automatic stations on Mars and perhaps Venus - Study of planetoids and comets - First trip of an unmanned rocket to the Moon and back. 1965/67 First landing of Man on the Moon. About 1970 First trips of astronauts around Mars and Venus, without landing. Before 1975 Landing of astronauts on Mars. Before 1980 Attempt of landing on Venus.

Card 2/2

USSR/Cultivated Plants - Fruits. Berries.

M

Abs Jour : Ref Zhur Biol., No 12, 1958, 53834

Author : Borun, S.S., Fedoseyev, A.P.

Inst : Kazakh Scientific Research, Hydrometeorological Institute

Title : Climatic Conditions during Spring and Measures for Protecting the Vineyards from Frosts in the Foothills of Trans-Ili Ala-Tau

Orig Pub : Tr. Kazakhsk. n.-i. gidrometeorolog, in-ta, 1957, vyp. 8, 57-63

Abstract : This article describes the study of the meteorological conditions during the spring period at a number of points in the foothills of the Trans-Ili Ala-Tau. The dates of beginning the opening of the vineyards can change, depending on the weather conditions, within the range of 2-3 ten day periods. The day of a consistent

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• USSR/Cultivated Plants - Fruits. Berries.

M

Abs Jour : Ref Zhur Biol., No 12, 1958, 53834

passing of the average daily temperature over  $5^{\circ}$  is taken as the conventional date for the start of the opening of the vineyards. This date is determined for each year on the basis of the data of many years and of a long range forecast, and is made more accurate by short range (weekly, 10-days) forecasts. The probability of the frost reaching to  $-8^{\circ}$  does not exceed 1 occurrence in 10 years, and to  $-3.5^{\circ}$  (after the opening of the buds) the probability is 15-30%. In order to preserve the vineyards from injuries, it is recommended to delay the beginning of the vegetation of the grape plant by deepening the root system and by measures retarding the warming-through of the soil (deep spring watering, etc.). The aggregate sum of the active temperatures in delaying the vegetation is still sufficient for the ripening of the grape varieties under cultivation (2900-3350 $^{\circ}$ ). -- V.V. Arkhangel'skaya

Card 2/2

- 138 -

BOCHAROV, Yu., arkhitektor; MARKUS, B., arkhitektor; TAZHIYEVA, L.,  
arkhitektor; BORUNOV, S., inzh.

Development of the structures of an industrial city. Ekaper.  
proekt. no.5:77-87 '62. (MIRA 18:9)

GEL'FAND, F.M.; BORUNOV, V.L.; YEFIMOV, V.V.; LAZAREV, V.P.

In producing straight cuts in Karaganda Basin mines. Nauch.  
Izudy KNIUI no.14:256-267 '64. (MIRA 18:4)

BORUNOVA, N. V.

Turova-Polyak, M. B. and Borunova, N. V. - "Synthesis of ethylaniline in the presence of 'solid phosphoric acid'," Vestnik Mosk. un-ta, 1948, No. 12, p. 85-89, - Bibliog: p. 89

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949)

150KUNOVY, N. V.  
Catalytic alkylation of aniline by ethyl alcohol. M. H. Turova-Pollak, N. V. Borunova, and R. S. Semenov (Moscow State University, Moscow) *Khim.* 23, 1024-1 (1953). Alkylation of PhNH<sub>2</sub> by EtOH over bentonite and "solid H<sub>3</sub>PO<sub>4</sub>" (activated C acid. with H<sub>3</sub>PO<sub>4</sub>) gives, as a result of promoted dehydration, considerable yields of PhNHET; only traces of PhNH<sub>2</sub> are formed. The optimum conditions over bentonite are 350°, diln. of PhNEt in 2 parts EtOH, and space velocity of 0.15; under these conditions 87% PhNHET is formed (calcd. on the feed of PhNH<sub>2</sub>). Over "solid H<sub>3</sub>PO<sub>4</sub>" the best conditions are 275°, diln. as above, and space velocity 0.3; the yield of PhNHET is 59% under these conditions. G. M. Kosolapoff

BORUNOVA, N. V.

"Investigating the Effects of Water Vapors and the Conditions of Preparation Under Pressure on the Properties of Nickel Catalysts." Cand Chem Sci, Inst of Organic Chemistry imeni N. D. Zelinskiy, Acad Sci USSR, Moscow, 1955. (KL, No 11, Apr 55)

22

SO: Sum. No. 704, 2 Nov 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (16).

25. CATALYTIC DEGREE OF AMORPHOUS NICKEL IN REACTIONS OF HYDRO-  
 GENATION OF BENZENE AND DEHYDROGENATION OF CYCLOHEXANE. Rubinshtein, A.M.,  
 Freidlin, L. Kh. and Boronova, N.V. (Izv. Akad. Nauk SSSR, Udal. Khim.  
 Nauk (Bull. Acad. Sci. USSR, Sect. Chem. Sci.), 1955, 766, 767; abstr.  
 in Chem. Abstr., 1956, vol. 50, 2262). A catalyst of 30% nickel and 70%  
 aluminum oxide was prepared from the corresponding nitrates treated with 30%  
 sodium hydroxide the resulting precipitate was dried at 110-20° and formed  
 into cylindrical pellets for use after calcining at 300°, 350°, or 425° either  
 after drying or directly, with reduction by hydrogen at 350° in both cases.  
 Preliminary calcining at 425° did not affect the hydrogenating/dehydrogenating  
 activity of the catalyst. Catalysts that were calcined 10-12 hrs. at 350°  
 or 425° after reduction with hydrogen (abs. pressure  $\approx$  500 atm.) showed  
 absolutely no activity, whereas calcination of such calcining gave active  
 catalysts. The inactive forms were amorphous, or at least did not have  
 crystalline units of dimensions expected of the substances involved.  
 Apparently 350-425° is the lowest temperature limit at which nickel oxide and  
 aluminum oxide can react chemically with each other, since 300° calcining  
 does not affect the catalyst activity. Apparently the reaction of the oxides  
 yields nickel aluminate during calcining; subsequent reduction with hydrogen  
 produces nickel and aluminum oxide and the isolated nickel alone cannot  
 associate to form crystals.

C.A.

*BORUNOVA, N. V.*

USSR/ Chemistry - Catalysts

Card 1/2

Pub. 22 - 23/52

Authors :

Freydlin, L. Kh.; Tulupova, E. D.; ~~Borunova, N. V.~~; Minachev, Kh. M.;  
and Shuykin, N. E. Memb. Corresp. of Acad. of Sc. USSR

Title :

Selective increase of Ni-Al<sub>2</sub>O<sub>3</sub> catalyst stability by compressing

Periodical :

Dok. AN SSSR, 100/2, 283-286, Jan 11, 1955

Abstract :

Investigation was conducted to determine the effect of two different organic substances on the stability of Ni-Al<sub>2</sub>O<sub>3</sub> catalysts prior and after compressing the catalyst. The relative stability of the compressed and uncompressed catalysts was established by the change in their activity during dehydrogenation reactions of cyclohexane and narrow Maykop gasoline fractions.

Institution :

Acad. of Sc. USSR, The N. D. Zelinskiy Institute of Organic Chemistry

Submitted :

July 13, 1954

Periodical : Dok. AN SSSR, 100/2, 283-286, Jan 11, 1955

Card 2/2 Pub. 22 - 23/52

Abstract : It was found that compressing will increase the stability of an Ni-Al<sub>2</sub>O<sub>3</sub> catalyst during the dehydrogenation of hydro-aromatic hydrocarbons in the presence of a poison-five-membered cyclene. In the case of poisoning with thiophene, which occurs according to a different mechanism, compressing shows no effect on the catalyst stability. Six USSR references (1926-1953). Graphs.

BOBKUNOVA, N.V.

Chem. Selective action of catalysts prepared from nickelous oxide treated with water vapor under pressure. I. R. G. Fajana, A. A. Balandin, and N. V. Bontarva. Bull. Acad. Sci. U.S.S.R., Div. Chem., Sci. Sect., 1957, 20 (Engl. translation). See C.A. 50, 8041f.

BOGUNOVA, N. V.

5

The change in the macrostructure and in the catalytic activity of aluminum oxide on treatment with water vapor and on being compressed. I. B. Neimark, I. Kh. Fridlin, A. I. Bantarenko, and N. V. Bogunova. Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci. 1956, 80-7 (English translation).—See C.A. 51, 4120j.

for  
MT

*BORUNOVA, N. V.*

USSR/ Chemistry - Organic chemistry

Card 1/1      Pub. 40 - 23/25

Authors      : Freydlin, L. Kh.; Balandin, A. A.; and Borunova, N. V.

Title        : Effectiveness of catalysts prepared from nickelous oxide treated in water vapors under pressure

Periodical   : Izv. AN SSSR. Otd. khim. nauk 1, 128-130, Jan 1956

Abstract     : It was established experimentally that by employing different aging conditions for NiO on the carrier by treating with water vapors it becomes possible to control the activity of nickel catalysts. It was found that nickel catalysts treated in such a manner lose the ability of hydrogenating the aromatic bond but still retain their activity for the hydrogenation of double C = C and C = O bonds. Two USSR references (1942-1945). Table.

Institution : Acad. of Sc., USSR, Inst. of Organ. Chem. im. N. D. Zelinskiy

Submitted    : July 20, 1955

BORUNOVA, N.V.

USSR/Kinetics - Combustion. Explosions. Topochemistry. Catalysis. B-9

Abs Jour : Referat Zhur - Khimiya, No 6, 1957, 18626

Author : I.Ye. Neymark, L.Kh. Freydlikh, A.I. Rastrenenko, N.V.  
Borunova.

Inst : Academy of Sciences of USSR.

Title : Change in Macrostructure and Catalytic Activity of  
Aluminum Oxide under Influence of Treatment with Steam  
and at Compression.

Orig Pub : Izv. AN SSSR, Otd. khim. n., 1956, No 7, 784-789.

Abstract : The following three samples of  $Al_2O_3$ -catalysts were studied: fresh  $Al_2O_3$  (I), I treated 5<sup>3</sup> hours with steam at 350° and 100 atm. (II), II compressed with 20,000 atm. (III). As compared with I, a decrease of the specific surface S from 355 to 125 sq.m/g, an increase of the prevailing pore radius r from 30 to 90 Å, and a decrease of the catalytic activity in dehydration reactions of formic acid and  $C_2H_5OH$  was detected in the sample II. The

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USSR/Kinetics - Combustion. Explosions. Topochemistry. Catalysis. B-9

Abs Jour : Referat Zhur - Khimiya, No 6, 1957, 18626

The dissociation depth of  $C_2H_5OH$  at  $310^\circ$  was 93.3% in case of I, while in case of II this reaction did not take place even at  $400$  to  $425^\circ$ . In case of III,  $S = 280$  sq.m/g,  $r$  was about  $10 \text{ \AA}$ ; the apparent density was about 2.5 times greater than that of II; the volume of transition pores was about 5 times less. The specific catalytic activities of I and III in the dehydration reaction of  $HCOOH$  at low temperatures differ insignificantly; at high temperatures, the catalytic activity of III drops considerably, which, in the authors' opinion, is explained by the diffusion slowing down in consequence of insufficient transition pores. The authors assume that treatment with steam can serve as a method of controlling the porosity character of oxide catalysts.

Inst. Org. Chem. im Zelinskiy, AS and Inst. Phys. Chem. im Pisarzhevskiy

Card 2/2

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BORUNOVA N.V.

USSR/Kinetica - Combustion. Explosions. Topochemistry. Catalysis. B-9

Abs Jour : Referat Zhur - Khimiya, No 6, 1957, 18625

Author : L.Kh. Freydlin, A.A. Balandin, N.V. Borunova, A.Ye. Agronomov.

Inst : Academy of Sciences of USSR.

Title : Mechanism of Deactivation of Nickel Catalysts by Steam Under Pressure.

Orig Pub : Izv. AN SSSR, Otd. khim. n., 1956, No 8, 913-922

Abstract : Unreduced catalysts of the composition 35% of NiO and 65% of  $Al_2O_3$ , as well as Ni-catalysts prepared from them after reduction were treated at 3500 with amixture of  $H_2$  (700 atm) and steam (100 atm) 5 hours in a special high pressure reactor. It was found that their activity in the reaction  $C_6H_6 + 3H_2$  and in the reverse reaction decreased strongly after the treatment, especially if the samples had been treated thus before the reduction. In this case, the magnitude of the specific surface of

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SOV/62-56-8-2/22

AUTHORS: Freydlin, L. Kh., Balandin, A. A., Borunova, N. V.,  
Agronomov, A. Ye.

TITLE: On the Relation Between the Activity and Stability of Nickel-Aluminium Catalysts and the Macro-Structure of the Carrier  
(O svyazi mezhdu aktivnost'yu i stabil'nost'yu nikel'-glinozemnykh katalizatorov i makrostrukturnoy nositelya)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk,  
1958, Nr 8, pp. 923-928 (USSR)

ABSTRACT: In the introduction the authors briefly discuss the influence of the macrostructure of the carrier on the activity of the nickel-aluminium catalyst (Refs 1-3). Then they describe their investigation of the relation between the activity and stability of nickel-aluminium catalysts on the one hand, and the character of the macro-structure of aluminium oxide on the other hand. This investigation showed that the dehydrating activity of the catalyst can mainly be recognized by the type of porosity of the carrier. It was found that catalysts produced by the application of nickel on coarse-porous aluminium oxide have a higher activity and greater stability than those produced by the application

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SOV/62-58-8-2/22

On the Relation Between the Activity and Stability of Nickel-Aluminium Catalysts and the Macro-Structure of the Carrier

of nickel on fine-porous aluminium oxide. The latter has the effect that the activity of the catalyst is considerably reduced. There are 4 figures, 1 table, and 10 references, 9 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy, AS USSR)

SUBMITTED: March 5, 1957

Card 2/2

5(3)  
AUTHORS: Borunova, N. V., Balandin, A. A., Freydlin, L. Kh. SOV/79-29-5-2/75

TITLE: On the Selectivity of the Action of Applied Nickel-Aluminum Oxide Catalysts (O selektivnosti deystviya nanesennykh nikel'-glinozemnykh katalizatorov)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 5, pp 1409 - 1412 (USSR)

ABSTRACT: ~~It was found previously~~ (Ref 1) that it is possible to obtain a nickel-aluminum oxide catalyst by the reduction of a mixture of nickel monoxide and aluminum oxide which was formed by common precipitation and treatment with water vapors under pressure. In the presence of such a catalyst the double bonds C=C and C=O are hydrogenated, but not the aromatic bonds. In the present paper the authors investigated the selectivity of such catalysts which were obtained from nickel monoxide applied on aluminum oxide and treated with water vapor or carbon dioxide. The catalysts applied prepared by treatment with water vapors were found to hydrogenate selectively the ethylene bond of octene-3 or styrene in the presence of an aromatic bond (Table 1). It was shown to be possible to regulate the activity of the catalysts obtained

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On the Selectivity of the ~~Action~~ of Applied Nickel-Aluminum Oxide Catalysts

SOV/79-29-5-2/75

by treating the mixture of nickel monoxide and aluminum oxide with carbon dioxide under pressure and to give them a specific efficiency (Table 2). The inactivation of the catalyst by treatment with carbon dioxide was proved to be reversible in contrast with the steam treatment. There are 2 tables and 4 Soviet references.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR (Institute of Organic Chemistry of the Academy of Sciences, USSR)

SUBMITTED: May 6, 1958

Card 2/2

5.1190

78058  
SOV/62-60-1-4/37

AUTHORS: Freydlin, L. Kh., Balandin, A. A., Borunova, N. V.,  
Agronomov, A. Ye.

TITLE: Concerning Connections Between the Microstructure of  
Aluminum Oxide and Activity of Nickel-Alumina Catalysts  
of Various Nickel Content

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh  
nauk, 1960, Nr 1, pp 21-23 (USSR)

ABSTRACT: This paper presents the results of investigations of  
the connection between the microstructure of aluminum  
oxide and activity of nickel-alumina catalysts of  
various Ni content. The catalysts were prepared by  
impregnation of alumina with  $\text{Ni}(\text{NO}_3)_2$  and reduction  
with  $\text{H}_2$  at  $350^\circ$ . The alumina for the catalysts 1  
and 2 (see Table) was prepared by ignition of com-  
mercial aluminum oxide at  $500^\circ$ . Alumina for catalyst  
3 was prepared by treatment of  $\text{Al}(\text{NO}_3)_3$  with ammonia.

Card 1/4 Activity of the catalysts was determined by the degree

Concerning Connections Between the  
Microstructure of Aluminum Oxide and  
Activity of Nickel-Alumina Catalysts  
of Various Nickel Content

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of cyclohexane dehydrogenation. The results are shown in Table 1. The following conclusions were made: Properties of nickel-alumina catalysts of various Ni content depend on the character of microstructure of alumina. Catalysts prepared with large-pore alumina, containing 5-10% Ni, are of high and practically the same activity. Activity of the catalyst, containing 50% Ni, is considerably lower. Catalysts prepared with fine-pore alumina and containing 5, 10, and 30% Ni are of a low activity and unstable. There are 1 table; and 9 references, 1 U.S., and 8 Soviet. The U.S. reference is: S. Brunauer, P. Emmet, A. Teller, J. Am. Chem. Soc., 62, 1723 (1940).

ASSOCIATION: N. D. Zelinskiy Institute of Organic Chemistry Academy  
of Sciences USSR and M. V. Lomonosov Moscow State University  
(Institut organicheskoy khimii imeni N. D. Zelinskogo  
Akademii nauk SSSR, Moskovskiy gosudarstvennyy universitet  
imeni M. V. Lomonosova)

SUBMITTED: May 5, 1958

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Concerning Connections Between the  
Microstructure of Aluminum Oxide and  
Activity of Nickel-Alumina Catalysts  
of Various Nickel Content

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Table 1

a		d	e	f	g	h	i	j
b	c							
—	1	—	—	190	20—100	65	5.1	—
1	—	5	25	175	20—100	56	4.6	59.4
2	—	10	25	175	20—100	52	4.3	89.0
—	2	—	—	240	25—110	45	4.8	—
3	—	2	25	—	—	—	—	44.0
4	—	5	25	—	—	—	—	80.0
5	—	10	10	—	—	—	—	89.2
6	—	30	10	150	25—100	45	3.3	87.2
7	—	50	15	150	25—100	45	2.9	62.4
—	3	—	—	370	15—40	28	4.7	—
8	—	2	20	385	14—40	22	4.0	2.4
9	—	5	20	370	14—40	22	3.7	48.4
10	—	10	20	350	14—35	20	3.2	53.4
11	—	30	20	270	10—27	18	2.4	—

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(Key to Table on Card 4/4)

Concerning Connections Between the  
Microstructure of Aluminum Oxide and  
Activity of Nickel-Alumina Catalysts  
of Various Nickel Content

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Key to Table 1: (a) number; (b) experiment; (c) sample  
of aluminum oxide; (d) Ni content in % by weight; (e)  
duration of reduction with  $H_2$  in hr; (f) specific  
surface in  $m^2/g$ ; (g) range of pore size in A; (h)  
maximum distribution of volumes of pores along the  
radius in A; (i) total amount of benzene absorbed on  
saturation, in millimoles/g; (j) degree of cyclohexane  
dehydrogenation in % of theoretical.

Card 4/4

FREYDLIN, L.Kh.; BORUNOVA, N.V.; KRYLOV, V.D. (Moscow)

Interaction of NiO with Al<sub>2</sub>O<sub>3</sub> in the atmosphere of water vapors and the effect of the latter on the properties of nickel-allumina catalysts. Zhur.fiz.khim. 35 no.11:2458-2464 N '61.

(MIRA 14:12)

1. Akademiya nauk SSSR, Institut organicheskoy khimii imeni N.D. Zelinskogo.

(Nickel oxide)

(Alumina)

ACCESSION NR: AP4044553

S/0204/64/004/004/0547/0551

AUTHOR: Freydlin, L. Kh., Borunova, N. V., Gvinter, L. I., Laynor, D. I., Kagan, N.M.

TITLE: Investigation of the effect of cadmium on the activity and selectivity of nickel-zinc catalysts during hydrogenation of hydrocarbons

SOURCE: Neftekhimiya, v. 4, no. 4, 1964, 547-551

TOPIC TAGS: cadmium, nickel, zinc, nickel zinc catalyst, hydrogenation, catalyst selectivity, hydrocarbon, benzene, styrene, cyclohexene, octene, gas chromatography, catalytic hydrogenation

ABSTRACT: The effect of metallic cadmium on the activity and selectivity of nickel over zinc oxide catalysts during the hydrogenation of hydrocarbons, such as hepten-3 (b.p. 95.8-96.1C,  $n_D^{20} = 1.4033$ ), a mixture of octenes (b.p. 123-125C,  $n_D^{20} = 1.4140$ ), cyclohexene (b.p. 83C,  $n_D^{20} = 1.4450$ ), styrene (b.p. 52-53 C/28mm Hg,  $n_D^{20} = 1.5462$ ) and benzene (b.p. 80.1C,  $n_D^{20} = 1.5017$ ), was investigated under flow conditions. After cooling to -5C,

Card 1/3

ACCESSION NR: AP4044553

the products were analyzed by gas chromatography. It was found that the relative amounts of cadmium necessary for deactivating the catalyst in the hydrogenation of benzene, cyclohexene and the ethyl bond of styrene were 0.2, 25 and 500% by weight. The probable mechanism of the action of cadmium at different temperatures was studied and discussed. It was established that a variation in the amount of Cd permits the selective hydrogenation of olefins in the presence of benzene or of styrene mixed with cyclohexene. The change in the catalytic properties of nickel due to the addition of Cd is due to the change in the composition and crystal structure of the surface layer of the catalyst. Under conditions close to those of the preparation of Ni-ZnO-Cd, cadmium interacts with nickel and forms an intermetallic compound. X-ray analysis and comparison of the interplanar spacings obtained previously showed that the reaction products of mixtures containing up to 70% Cd consist of nickel crystals and  $\beta$ -phase crystals ( $\text{Cd}_1$ ,  $\text{Ni}_1$ ). For products containing only 30% nickel, there was only one line of  $\beta$ -phase with a further increase in the Cd content in the mixture, lines of other intermetallic compounds, apparently with a higher cadmium content ( $\beta$ -phase), appear. On increasing the time of reaction of the catalysts, the loss in Cd increases. New active surface sites on the Ni catalyst are set free and the activity

Card 2/3

ACCESSION NR: AP4044553

increases. Using a catalyst poisoned with 5% Cd the degree of hydrogenation of pentene-3 was 25% after reduction for 10 hours and 90% after 40 hours. Orig. art. has: 4 figures and 2 tables.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo, AN SSSR (Institute of Organic Chemistry, AN SSSR); Gosudarstvenny\*ynauchno-issledovatel'skiy institut splavov i obrabotki tsvetny\*kh metallov (State Scientific Research Institute for Alloys and Non-Ferrous Metallurgy)

SUBMITTED: 02Jul63

SUB CODE: OC

NO REF SOV: 005

OTHER: 007

Card 3/3

FREYDLIN, L.Kh.; BORUNOVA, N.V.; SAMOKHVALOV, G.I.; MIROPOL'SKAYA, M.A.;  
YANOTOVSKIY, M.TS.; GVINTER, L.I.; FEDOTOVA, N.I.

Directed changes in the selectivity of catalysts in the process  
of hydrogenation of the dienone group. Report No.1: Hydrogenation  
of 6-methyl-3,5-heptadien-2-one on nickel catalysts. Izv. AN SSSR.  
Ser. khim. no.6:996-1003 Je '64.

(MIRA 17:11)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR i  
Vsesoyuznyy nauchno-issledovatel'skiy i vitaminnyy institut.

BORUNOVA, N.V.; FREYDLIN, L.Kh.; GVINTER, L.I.

Changes in nickel catalyst selectivity in the process of  
hydrogenation of crotonaldehyde. Izv. AN SSSR. Ser. khim.  
no.6:1115-1117 Je '64. (MIRA 17:11)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

FREYDLIN, L.Kh.; BORUNOVA, N.V.; GVINTSEV, L.I.; LAYNER, D.I.; KAGAN, N.M.

Investigating the effect of cadmium on the activity and selectivity of nickel-zinc catalysts in the hydrogenation of hydrocarbons. Neftekhimia 4 no.4:547-551 Ji-Ag '64. (MIRA 17:10)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR i Gosudarstvennyy nauchno-issledovatel'skiy institut splavov i obrabotki tsvetnykh metallov.

FREYDLIN, I.N.; BORUNOVA, N.V.; SVINTER, L.I.

Selectivity in the action of nickel and cobalt catalysts by modification in the course of hydrogenation of the diene group. Dokl. AN SSSR 163 no.5:1173-1176 Ag '65. (MIRA 18:8)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.  
Submitted February 15, 1965.

BORUNOVA, N.V.; FREYDLIN, L.Kh.; KHOL'MER, O.H.; NOVIKOVA, Ye.S.

Preparation of propionaldehyde by catalytic dehydrogenation  
of n-propyl alcohol. Izv. AN SSSR.Ser.khim. no.10:1845-1849  
'65. (MIRA 18:10)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR i  
Moskovskiy zavod "Slozhnyye efiry".

LARIONOVA, T.I.; PETROVSKAYA, V.G.; BORUNOVA, S.F.

Comparative study of the phosphatase activity of typhoid fever  
bacteria of various virulence. Biol. eksp. biol. i med. 57 no.4:  
78-80 Ap '64. (MIRA 18:3)

1. Otdel obshchey meditsinskoy mikrobiologii (zav. - deystvitel'nyy  
chlen AMN SSSR V.D. Timakov) Instituta epidemiologii i mikrobiologii  
imeni Gamalei (dir. - prof. P.A. Vershilova), Moskva. Submitted  
June 15, 1963.

BORUS, Sandor

Application of large-diameter asbestos cement pressure tubes.  
Magy ep ipar 13 no.7:421-424 '64.

SOV/81-59-9-32192

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 9, p 372 (USSR)

AUTHORS: Borusevich, A.I., Sinkovskaya, T.N.

TITLE: The Application of Liquid Glass<sup>o</sup> in the Production of Precision Casting  
(From the Experience of the Work of the Kiyev Mechanical Plant "Glav-  
mashmet")

PERIODICAL: Mashinost. i priborostroyeniye. (Sovnarikhov Kiyevsk. ekon. adm. r-na)  
1958, Nr 7, pp 12 - 15

ABSTRACT: A new technology of the production of castings on dispensable patterns is based on the production of a refractory shell with the application of liquid glass (LG) and  $\text{NH}_4\text{Cl}$ , under the effect of which the decomposition of LG takes place with the separation of silica in the form of a gel which binds the sand grains and marshallite into a solid shell. The initial materials for the production of the refractory coating are: marshallite, soda or soda-sulfate LG, quartz sand and an aqueous solution of ammonium chloride. The standards of the consumption of the various materials per 1 t of casting material are cited. The processes

Card 1/2

SOV/81-59-9-32192

The Application of Liquid Glass in the Production of Precision Casting (From the Experience of the Work of the Kiyev Mechanical Plant "Glavmashmet")

are briefly described for manufacturing models and blocks, preparing refractory coating and applying it to the models, the melting of the models and the calcination of the shell. If LC is used for the purposes indicated ~ 1.5 thousand rubles per 1 t of suitable casting is saved.

S. Iofe

Card 2/2

KRIPYAKOVICH, P.I. [Kryp'iakovych, P.I.]; GLADYSHEVSKIY, Ye.I. [Hladyshevs'kyi, Ye.I.]; ZALUTSKIY, I.I. [Zaluts'kyi, I.I.] pri uchastii studentok: YEVDOKIMENKO, V.I. [Ievdokymenko, V.I.]; BORUSEVICH, L.K. [Borusevych, L.K.]

Crystal structure of the compounds  $ZrNi_4$ ,  $ZrMnNi$ , and  $ZrV_{0.5}Ni_{1.5}$ .

Nauk.zap.L'viv.un. 46:118-123 '58.  
(Systems (Chemistry))

(MIRA 12:7)

BORUSEVICH, L.K.; GLADYSHEVSKIY, Ye.I.; FEDOROV, T.F.; POPOVA, N.M.

New representatives of the  $W_3Fe_3C$  structural type. Zhur. strukt. khim.  
6 no.2:313-314 Mr-Ap '65. (MIRA 18:7)

1. L'vovskiy gosudarstvennyy universitet imeni Ivana Franko i Institut metallurgii imeni Baykova AN SSSR, Moskva.

L 17428-63 EWP(q)/EWT(m)/BDS AFFTC/ASD Pad JD/HW  
 S/0078/63/008/008/1915/1920

ACCESSION NR: AP3004349

AUTHORS: Gladyshevskiy, Ye. I.; Borusevich, L. K.

TITLE: Ternary system Cr-Ni-Si

SOURCE: Zhurnal neorganicheskoy khimii, v. 8, no. 8, 1963,  
 1915-1920

TOPIC TAGS: Cr, Ni, Si, chromium, nickel, silicon

ABSTRACT: Authors studied a ternary phase equilibrium system of chromium-nickel-silica. Phase equilibrium findings are shown in a diagram in the form of an isothermal cross section of the Cr-Ni-Si system at 850C. Authors found that the alloys have three additional ternary systems besides the two intermetallic ternary systems found previously in the presence of large amounts of silica. These freshly-found ternary systems are in the  $T_1$ ,  $T_2$ , and  $T_3$  phases. X-ray and microstructural methods confirm that the composition of the  $T_1$  phase belongs to the structure of the  $Mg_2Cu_{18}Si_7$  type. The alloys containing about 1% of H by weight

Card 1/2

L 17428-63

ACCESSION NR: AP3004349

in a  $\text{Cr}_3\text{Ni}_2\text{Si}$  composition have a composition ( $\eta'$  phase) which corresponds to a structure of the  $\text{Ti}_3\text{Ni}$  or  $\text{W}_3\text{Fe}_2\text{C}$  type. "The authors express their gratitude to P. I. Kripyakevich for his interpretation of the results." Orig. art. has: 2 figures and 3 tables.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. Iv. Franko (Lyov state university)

SUBMITTED: 11Oct62

DATE ACQ: 21Aug63

ENCL: 00

SUB CODE: CH

NO REF SOV: 011

OTHER: 007

Card

2/2

L 23613-65  
JD/JG/MLK

EMA(k)/ENT(1)/ENT(m)/EPF(n)-2/EEG(t)/ENP(t)/ENP(b) Pu-4 JPF(c)

S/0000/64/000/000/0171/0171

ACCESSION NR: AT5002774

AUTHOR: Borusevich, L.K.; Gladyshevskiy, Ye. I.

TITLE: X-ray structural study of alloys of the system Mo - Re - C

SOURCE: Vsesoyuznoye soveshchaniye po probleme reniya. 2d, Moscow, 1962. Renty (Rhenium); trudy soveshchaniya, Moscow, Izd-vo Nauka, 1964, 171

TOPIC TAGS: <sup>27</sup> rhenum, <sup>27</sup> rhenum alloy, xray structural analysis, rhenum alloy micro-structure, <sup>27</sup> molybdenum alloy, <sup>27</sup> carbon content, cast rhenum alloy, molybdenum carbide

ABSTRACT: The authors studied the phase equilibria in the ternary system Mo - Re - C, using 25 alloys prepared from electrolytic rhenum (99.6% Re), molybdenum (99.97% Mo), and carbon black. Two ternary compounds were identified in the cast alloys obtained:  $Mo_3Re_2C$ , having a structure of the  $\beta$ -Mn type, and  $(Mo, Re)C$ , of NaCl-type structure, containing from a few to 40 at. % Re. The compound  $Mo_2C$  and Re form a continuous series of solid solutions with a gradual change in lattice constant. This series is made possible by the isostructural character of  $Mo_2C$  and Re. Results of the investigation of the system Mo - Re - C show that it is closely related to the system W - Re - C, which had been studied earlier.

PURE METAL

Card 1/2

L 23613-65

ACCESSION NR: AT5002774

ASSOCIATION: none

SUBMITTED: 05Aug84

INCL: 00

SUB CODE: MM, CP

NO REF SOV: 002

OTHER: 001

Card 2/2

L 23504-63 EWA(x)/EWT(1)/EWT(n)/EPT(n)-2/222/0026  
IJP(c) JD/JG

S/0226/64/000/006/0022/0026

ACCESSION NR: AP5001588

AUTHOR: Borusevich, L. V., Gladyshevskiy, Ye. I.

TITLE: X-ray diffraction analysis of alloys of the system  $\text{Mo-Re-C}$

SOURCE: Poroshkovaya metallurgiya, no. 6, 1964, 22-26

TOPIC TAGS: molybdenum alloy, rhenium alloy, carbon alloy, electrolytic rhenium, x-ray diffraction analysis, alloy structure, cast alloy, annealed alloy

ABSTRACT: Twenty alloys prepared from electrolytic rhenium (99.60% Re), molybdenum (99.97% Mo), and carbon black were subjected to x-ray diffraction analysis in the cast and annealed states. Two ternary compounds were found as a result of studying the cast alloys. The x-ray diffraction pattern of the alloy containing 50 at.% Mo, 33.3 at.% Re, and 16.7% C ( $\text{Mo}_3\text{Re}_2\text{C}$ ) revealed a cubic system (lattice constant  $a = 6.86 \pm 0.01$  Å). A calculation of the interference indicated that the crystal structure of this compound (which the authors called the  $\pi$ -phase) belonged to the  $\beta$ -Mn structural type. The interplanar spacings and interferences are given in tabular form. The second compound found,  $(\text{Mo}, \text{Re})\text{C}$ , had a NaCl-type structure and contained a variable quantity of rhenium, from a few to 40 at.%. The maximum carbon content was 50 at.%. There was a continuous series of solid solutions, with

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( J. 23504-65

ACCESSION NR: AP5001588

gradually changing lattice constants, between  $\text{Mo}_2\text{C}$  and  $\text{Re}$ . The investigation of the alloys annealed at 1400C revealed that as the temperature dropped the homogeneity region of the carbide  $(\text{Mo}, \text{Re})\text{C}$  narrowed and the continuous solid solution  $\text{Mo}_2\text{C}-\text{Re}$  decomposed. No  $\alpha$ -phase was noted in the annealed alloys. The results of investigations on the system  $\text{Mo}-\text{Re}-\text{C}$  demonstrated the similarity between this system and the previously studied system  $\text{W}-\text{Re}-\text{C}$  in which two ternary compounds,  $(\text{W}, \text{Re})\text{C}$  and  $\text{W}_3\text{Re}_2\text{C}$ , and a continuous series of solid solutions  $(\text{W}_2\text{C}-\text{Re})$  were found. Orig. art. has: 2 tables and 4 figures.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. Iv. Franko (Lvov state university)

SUBMITTED: 25Sep63

ENCL: 00

SUB CODE: MM

NO REF SOV: 005

OTHER: 009

Card 2/2

BORUSHKO, I.S.

Effect of bodies of water on the air temperature and humidity  
of the shore. Trudy GGO no.182:38-49 '65. (MIRA 18:9)

L 53914-65 EWP(e)/ENT(m)/ENP(i)/EPF(n)-2/ENG(m)/EPR/I/ENP(t)/ENP(k)/ENP(z)/  
 EWP(b)/EWA(c) Pf-4/Pad/Ps-4/Pi-4/Pu-4 IJP(c) RWH/JD/HW/JG/AT/NH  
 ACCESSION NR: AP5011928 UR/0192/65/006/002/0313/0314  
 48.736

AUTHOR: Borusevich, L. K.; Gladyshevskiy, Ye. I.; Fedorov, T. F.; Popova, N. M.

TITLE: New representatives of the structural type  $W_{sub} 3 Fe_{sub} 3 C$

SOURCE: Zhurnal strukturnoy khimii, v. 6, no. 2, 1965, 313-314

TOPIC TAGS: carbide structure, tungsten carbide, iron carbide, mixed carbide,  
 Eta phase, niobium carbide, cobalt carbide, tantalum carbide

ABSTRACT: Carbides possessing the structure of  $\eta$  phases exist in many ternary and quaternary systems. In a study of the phase equilibria in the ternary system Nb-Co-C, the authors found that a ternary compound is formed in annealed samples in the vicinity of the composition  $Nb_3Co_3C$ . The present article is devoted to a study of the crystal structure of this compound, and of the possible formation of analogous compounds in other systems formed by transition metals with carbon. The compounds  $Nb_3Co_3C$  and  $Ta_3Co_3C$  were prepared from powdered components (NbC + Co + Nb; TaC + Co + Ta) by pressing, sintering, and remelting. The calculated line intensities were found to be in good agreement with the ob-

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L 53914-65

ACCESSION NR: AP5011828

served intensities, thus indicating that the compounds belong to the type  $W_3Fe_3C$ . Analogous compounds of the same structural type were found in the systems Nb-Ni-C and V-Fe-C:  $Nb_3Ni_3C$  and  $V_3Fe_3C$ . Orig. art. has: 1 table.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. Iv. Franko (Lvov State University); Institut metallurgii im. A. A. Baykova (Institute of Metallurgy)

SUBMITTED: 05Sep64

ENCL. 00

SUB CODE: IC, MM

NO REF SOV: 002

OTHER: 001

BORUSEVICH, L.K. (L'vov); GLADYSHEVSKIY, Ye.I. (L'vov)

Ternary system Cr - Co - Si. Izv. AN SSSR. Met. no.6:  
120-126 N-D '65. (MIRA 19:1)

1. Submitted January 13, 1964.

L 64484-65 EWP(e)/EWT(m)/EPF(n)-2/T/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c) IJP(c)  
 JD/HW/JG UR/0370/65/000/004/0159/0162 45  
 669.017.13 41

ACCESSION NR: AP5021502

AUTHOR: <sup>44.55</sup> Borusevich, L. K. (Moscow, Lvov); <sup>44.55</sup> Fedorov, T. F. (Moscow, Lvov); Popova, N. M. (Moscow, Lvov)

<sup>44.55</sup> TITLE: X-ray structural study and metallographic analysis of the Nb-Co-C system  
 27 27 27

SOURCE: AN SSSR. Izvestiya. Metally, no. 4, 1965, 159-162

TOPIC TAGS: alloy phase diagram, cobalt alloy, niobium alloy, carbide

ABSTRACT: The binary systems which make up the ternary Nb-Co-C system have been studied rather extensively. On the other hand, only the solubility of NbC in cobalt has been studied in the ternary system as a whole. It has been established that Co can dissolve 0.8 wt. % of NbC (Shchetilina, Ye. A., (Chaporova, I. N., "Interaction of Niobium Carbide with Cobalt," *Metallovedeniye i termicheskaya obrabotka metallov*, 1959, No 6) or 5% NbC (Edwards, R., Rein, T., "Solid Solubilities of Stable Carbides in Co, Ni and Fe," *Pulvermetallurgie. 1 Plasse Seminar*, 1952, Wien, 1953, 232). The authors studied the Nb-Co-C ternary system as a representative of the important group of Me<sup>I</sup>-Me<sup>II</sup>-C systems, where Me<sup>I</sup> is a refractory metal and Me<sup>II</sup> is a metal of

Card 1/3

L 64484-6

ACCESSION NR: AP5021502

in the iron group. The various compositions in the system were prepared by powder metallurgy methods using niobium, graphite and cobalt powders. The starting materials were mixed for 24 hours, pressed into briquettes of 10 grams each, and heated in a vacuum of  $10^{-3}$  mm Hg at a temperature of  $\sim 0.8 T_{\text{melt}}$ . The sintered billets were melted in an arc furnace in a helium atmosphere. The phase equilibrium diagram for the Nb-Co-C system at 1000°C is shown in fig. 1 of the Enclosure. It was found that no ternary compounds are formed. The cobalt-based solid solution and the binary compounds NbCo<sub>2</sub> and NbCo form two-phase alloys with the carbide NbC, while the compound NbCo is formed with the carbide Nb<sub>2</sub>C. The phase equilibrium diagram shows a previously unknown ternary compound ( $\eta$ -phase) close to the composition Nb<sub>3</sub>Co<sub>3</sub>C. This compound is in equilibrium with NbC, Nb<sub>2</sub>C, Nb, NbCo and NbCo<sub>2</sub>. In addition, NbC is in equilibrium with cobalt and with NbCo<sub>2</sub>. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 25Jun64

NO REF SOV: 012

ENCL: 01

OTHER: 013

SUB CODE: MM

Card 2/3

L 64484-65

ACCESSION NR: AP5021502

ENCLOSURE: 01

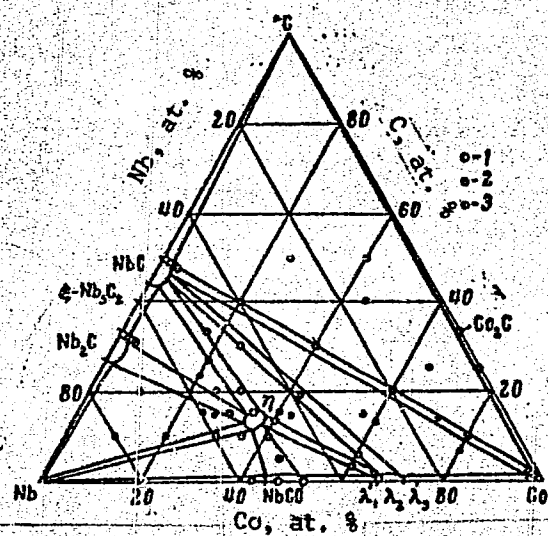


Fig. 1. Diagram of phase equilibria in the Nb-Co-C system at 1000°C. 1--single-phase alloys; 2--two-phase alloys; 3--three-phase alloys

Card 3/3

E 33104-00 (A) SOURCE CODE: UR/0310/65/000/006/0120/0126

ACC NR: AP6014116

AUTHORS: Borusevich, L. K. (L'vov); Gladyshevskiy, Ye. I. (L'vov)

ORG: none

TITLE: Ternary system Cr--Co--Si

SOURCE: AN SSSR. Izvestiya. Metally, no. 6, 1965, 120-126

TOPIC TAGS: alloy phase diagram, chromium containing alloy, cobalt containing alloy, silicon containing alloy

ABSTRACT: The phase equilibria in the ternary system Cr--Co--Si were investigated at 300 and 1000C. The investigation supplements the results of Ye. I. Gladyshevskiy and P. I. Kripyakevich (Metallicheskiye soyedineniya so strukturami metallov. B. kn. VIII Mend. s'yezd po obshchey i prikl. khimii. Referaty dokladov, sektsiya metallov i splavov. Izd. AN SSSR, 1958, 44). The phase equilibria were studied by x-ray powder techniques and microstructural analysis. The experimental results are summarized in graphs and tables (see Fig. 1). It was found that CoSi and CrSi form a continuous series of solid solutions. The compound Co<sub>2</sub>Si dissolves in 30 at % of Cr at 1100C. L. P. Ryzhenko assisted in the experiments.

Card 1/2

UDC: 669.265'25'782

7.45.00-00

ACC NR: AP6014116

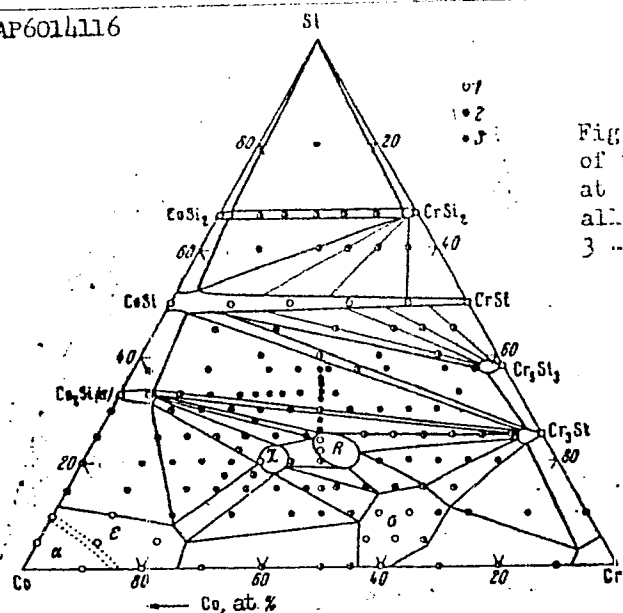


Fig. 1. Phase diagram of the system Cr--Co--Si at 800°C. 1 - one-phase alloys, 2 - two-phase alloys, 3 - three-phase alloys.

Orig. art. has: 3 tables and 2 graphs.

SUB CODE: 11/

SUBM DATE: 13Jan64/

ORIG REF: 005/

OTH REF: 006

Card 2/2 MLP

L 44308-66 EXT(m)/EXP(t)/ETI JNP(c) JD/IG

ACC NR: AP6019838

(A)

SOURCE CODE: UR/0370/66/000/001/0159/0164

AUTHOR: Gladyshevskiy, Ye. I. (L'vov); Borusevich, L. K. (L'vov)

ORG: none

TITLE: The ternary system  $\text{Cr-Fe-Si}$   
2, 17-7

SOURCE: AN SSSR. Izvestiya. Metally, no. 1, 1966, 159-164

TOPIC TAGS: alloy phase diagram, ternary alloy, chromium alloy, iron alloy, silicon alloy, solid solution

ABSTRACT: Although the interaction between Fe and Cr and Si has been the subject of several studies in the past owing to the significance of this problem to the development of corrosion-resistant high-temperature materials, the complete phase equilibrium diagram of the Cr-Fe-Si system has not previously been investigated. To fill this gap, the authors investigated by radiographic and microstructural methods specimens of 120 Cr-Fe-Si alloys melted in corundum crucibles within helium-atmosphere induction and arc furnaces and annealed at 900°C for 400 hr in evacuated quartz ampoules. The findings (Fig. 1) confirm the existence of a continuous series of CrSi-FeSi solid solutions, as well as the limited solubility of the compounds FeSi<sub>2</sub> and CrSi<sub>2</sub>. It is further established that the solubility of the compounds

Card 1/3

UDC: 669.017.13

L 44308-66

ACC NR: AP6019838

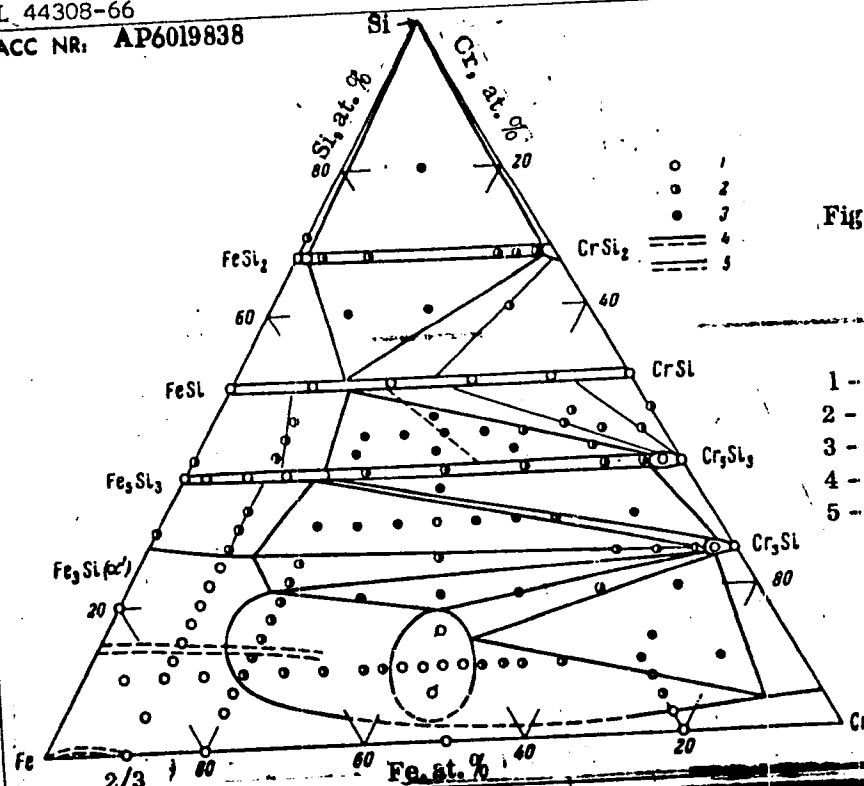


Fig. 1. Phase equilibrium diagram of the ternary system Cr-Fe-Si at 900°C.

- 1 - single-phase alloys;
- 2 - two-phase alloys;
- 3 - three-phase alloys;
- 4 - boundaries of phase fields
- 5 - tie lines

L 44308-66

ACC NR: AP6019838

$\text{Cr}_5\text{Si}_3$ - $\text{Fe}_5\text{Si}_3$  is also limited and that a continuous series of solid solutions between the iso-structural compounds  $\text{Cr}_5\text{Si}_3(\text{S})$  and  $\text{Fe}_5\text{Si}_3$  exists in C-containing alloys. At 900°C the  $\sigma$ -phase of  $\text{CrFe}(\text{Si})$  gets stabilized by Si; measurements of the lattice constant and microstructure show that this phase contains from 37 to 48 at. % Cr. The solubility of Si in the  $\sigma$ -phase is 18 at. % Si. Orig. art. has: 2 figures, 1 table.

SUB CODE: 13, 2a, 11/ SUBM DATE: 28Apr64/ ORIG REF: 011/ OTH REF: 010/

RAVICH, G.B.; BORUSH, O.F.

~~Investigation of polymorphism of paradichlorobenzene. Izv. Sekts. fiz.-khim. anal. 23:309-313 '53.~~  
(MLRA 6:1)

1. Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova  
Akademii nauk SSSR. (Polymorphism)

GEORGIYEVSKAYA, N.I.; BORUSHKO, I.I.

Effectiveness of sanatorium treatment of children with rheumatism.  
Vop.akh.mat i det. 7 no. 12-64-66 D'62. (MIRA 16:7)

1. Iz kafedry fakul'tetskoy pediatrii Voronezhskogo meditsinskogo  
instituta (zav. - kand.med nauk N.I. Georgiyevskaya)  
(RHEUMATIC FEVER)

BORUSHKO, I.I.

Capillary permeability and resistance during the active  
phase of rheumatic fever in children. Vop.okh.mat. i det.  
8 no.2:35-39 F'63. (MIRA 16:7)

1. Iz kafedry fakul'tetskoy padiatrii (zav. - kand.med.nauk  
N.I.Georgiyevskaya; nauchnyy rukovoditel' raboty - prof.  
M.A. Bubnova) Voronezhskogo meditsinskogo instituta.  
(CAPILLARIES—PERMEABILITY) (RHEUMATIC FEVER)

~~BORUSHKO, I.M., inzh.; BOKHOVCHUK, M.M., inzh.; FIDEL'MAN, G.S., inzh.;~~  
POZIN, M.Ye., doktor tekhn. nauk; TARAT, E.Ya., kand. tekhn. nauk.

Foam dust collectors used at the concentration plant of the  
"Apatite" Combine. Bezop. truda v prom. 2 no.2:9-11 F '58.

(MIRA 11:2)

1. Kombinat "Apatit" (for Borushko, Bokhovchuk, Fidel'man). 2. Le-  
ningradskiy tekhnologicheskii institut im. Lensovet (for Pozin,  
Tarat).

(Dust collectors)

~~BORUSHKO, I.M.~~

Our experience in preventing accidents. Bezop. truda v prom. 2  
no. 6:28-30 Ja '58. (MIRA 11:7)

1. Glavnyy inzhener kombinata "Apatit."  
(Khibiny Mountains--Apatite)

88288

S/032/61/027/001/026/037  
B017/B054

1.9600

AUTHORS: Azhazha, V. M. and Borushko, I. M.

TITLE: Vacuum Machine for Investigating Creep and Endurance

PERIODICAL: Zavodskaya laboratoriya, 1961, Vol. 27, No. 1, pp. 92-93

TEXT: A high-vacuum apparatus was developed to investigate endurance and creep of metals and alloys within a wide range of temperatures and stresses. The vacuum system consists of a working chamber, a high-vacuum diffusion pump, and an P8H-20 (RVN-20) rough-vacuum pump. During investigations, pressure in the chamber is kept at  $1 - 5 \cdot 10^{-5}$  mm Hg. Samples are heated in a molybdenum tube furnace (up to  $1500^{\circ}\text{C}$ ). There are 2 figures. X

ASSOCIATION: Khar'kovskiy fiziko-tekhnicheskii institut Akademii nauk USSR (Kharkov Institute of Physics and Technology, Academy of Sciences UkrSSR)

Card 1/1

BORUSHKO, I.S.

551.511.1:51.551  
 5.9-116  
 Borushko, I.S. Opredeleanie koefitsienta turbulentnogo peremeschivaniia sputnoshch  
 [Determination of the coefficient of turbulent mixing by Ertel's method.] Lev  
grad. Glavnaia Geofizicheskaiia Observatoriia, Trudy, 16(78):106-112, 1949. 7 figs, 5 refs.  
 DLE - According to Ertel, it is sufficient to observe the horizontal pulsations and the  
 vertical gradient of the wind in order to compute the coefficient of turbulent mixing. An  
 experimental test of Ertel's relationship based mainly on the standard deviation of the wind  
 pulsations and their changes in time was made by means of ALBRECHT's heat anemometer.  
 Ertel's formula gives greatly exaggerated values compared with the equation of ROSTOV.  
 BUDYKO and others for all cases of stratification. His hypothesis of the constant horizontal  
 momentum during the mixing process is considered to be inadequate. Subject Heading:  
 1. Exchange coefficient 2. Wind pulsations. 1. Ertel, H. 1.1. AK

*BORUSHKO, I.S.*  
BORUSHKO, I.S.

Effect of irrigation on heat exchange in the soil. Trudy GGO

no.37:3-6 '52.

(MIRA 11:1)

(Leningrad Province--Soil temperature)

BORUSHKO, I. S.

BORUSHKO, I.S.

Comparison of various methods used in the determination of thermal  
flow in soils. Trudy GGO no.37:59-67 '52. (MIRA 11:1)  
(Soil temperature)

BORUSHKO, I. S.; AYZENSH'TAT, B.A.; OGNEVA, T.A.

"Influence of Irrigation Upon the Distribution of Meteorological Elements in the Layer Near the Ground"

Tr. Gl. Geofiz. Observatorii, No 39, 61-90, 1953

The authors give the comparative characteristics of the regime of meteorological elements in the layer of air up to 500 meters and in the soil down to 50 cm according to given aerological and ground observations in a semi-desert and in an irrigated cotton field. It is found that the speed of wind is reduced 40-50 percent under the influence of irrigation and forest belts. (RZhGeol, No 3, 1954)

SO: W-31187, 8 Mar 55

BORUSHKO, I. S., KIRILLOVA, T. V., OGNEVA, T. A. and CHURINOVA, M. P.

"Description of Observation Procedures and Areas".  
Trudy Gl. Geofiz. Observ., No 39, pp 290-298, 1953.

Information of the observations made by the expedition of the Main Geophysical Observatory to Pakhta-Ara and to Golodnaya Step' in the month of July of 1952 is given. (RZhGeol, No 11, 1955)

SO: Sum No 884, 9 Apr 1956

BORUSHEK, I.S.

Influence of bodies of water on the temperature and humidity of  
surrounding regions. Trudy GGO no.59:69-76 '56. (MIRA 10:3)  
(Microclimatology)

ACC NR: AP7000418.

SOURCE CODE: UR/0012/66/098/005/0461/0463

AUTHOR: Mikhel', V. M.; Borushko, I. S.

ORG: none

TITLE: Session of the Scientific Council of the Main Geophysical Observatory, dedicated to the memory of A. I. Voyeykov

SOURCE: Vsesoyuznoye geograficheskoye obshchestvo. Izvestiya, v. 98, no. 5, 1966, 461-463

TOPIC TAGS: meteorologic conference, microclimatology, bioclimatology, atmospheric ~~CONTAMINATION~~, heat balance, heat biologic effect, free atmosphere, atmospheric temperature, atmospheric circulation, climatology

ABSTRACT: A meeting of the Scientific Council of the Main Geophysical Observatory (GGO) was held in Leningrad on 2--6 March 1966. Some 250 climatologists and meteorologists from the GGO and 27 other organizations were in attendance. Twenty-six papers were presented in three main sessions: heat balance, atmospheric circulation, and applied climatology. Of these, the following are of interest to users of the CBE Factors reports.

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UDC: 006.3:550.3

ACC NR: AP7000418

- 1) M. I. Budyko (GGO), delivered a paper on the development of research dealing with the role of heat balance in climatology. Emphasis was on the considerable significance of heat-balance data in bioclimatological studies, in engineering, and in photosynthesis research.
- 2) O. B. Mertsalova (Scientific Research Institute of Aeroclimatology--NIIAK) presented a paper on mechanized computations of the statistical parameters of the free atmosphere used in designing airborne apparatus.
- 3) M. Ye. Berlyand (GGO) discussed the climatic aspects of research on atmospheric pollution caused by industrial effluents. Several climatic indices characterizing the extent of the distribution of atmospheric boundary layer pollution in the USSR were obtained from extensive theoretical and experimental studies carried out by the Division of Atmospheric Diffusion Research.
- 4) I. A. Gol'tsberg (GGO), in a paper entitled "Microclimatic research and its applied significance," presented the results of work carried out to determine the spatial characteristics and distribution of the quantitative characteristics of a microclimate due to the underlying surface, degree of relief dissection, and climatic conditions.

Card 2/3

ACC NR: AP7000418

5) G. V. Tsitsenko (GGO) presented a paper on the influence of meteorological factors on man's body heat. He gave a quantitative evaluation of the heat balance of a man's body in terms of the daytime changes in the bioclimatological characteristics of various regions of the USSR during the summer.

6) Ye. S. Selezneva (GGO) presented the results of studies on the chemical composition of precipitation, which gave additional information in estimating the degree of atmospheric pollution in various regions.

[W.A. 50]

SUB CODE: 04/ SUBM DATE: none

Card 3/3

MARKOV, Vladimir Mikhaylovich; ~~BORUSHKO, Mikhail Adamovich~~; CHELYSHKIN, Yu.G.,  
redaktor; SOKOLOVA, N.N., tekhnicheskikh redaktor

[Laboratory manual for vegetable growing] Rukovodstvo k laboratornym  
zaniatiyam po ovoshchevodstvu. Moskva, Gos. izd-vo selkhoz. lit-ry,  
1956. 223 p. (MIRA 9:12)  
(Vegetable gardening)

USSR/Cultivated Plants - Potatoes. Vegetables. Melons.

M

Abs Jour : Ref Zhur Biol, No 12, 1958, 53646

Author : Dorushko, M.A.

Inst : Zhitomir Agricultural Institute

Title : Some Agrotechnical Problems in Growing Water Melon  
in Poles'ye

Orig Pub : Nauchn. tr. Zhitomirsk. s.-kh. in-t, 1957, 4, 187-194

Abstract : According to the results of field experiments at the  
Experimental Training Farm of Zhitomir Agricultural  
Institute the planting of water melons on ridges in-  
creased their yield from 69.1 (on flat surface) to  
120.3 centners/ha in 1951 and from 143.3 to 181.3  
centners/ha in 1953. With the spring drought the yield  
decreased. The hardening of the seeds for 2 weeks,  
particularly by means of variable temperature, increased

Card 1/2

USSR/Cultivated Plants - Potatoes. Vegetables. Melons.

M

Abs Jour : Ref Zhur Biol., No 12, 1958, 53646

the yield, on an average for 3 years, from 92.3 to 109.4 centners/ha. A positive effect was produced by applying  $P_c$  and  $K_c$  to the planting holes to a depth of 5-6 cm. The latter method raised the quality of the water melons at the same time! -- N.N. Sokolov

Card 2/2

- 56 -

MARKOV, Vladimir Mikhaylovich; BOHUSHEKO, Mikhail Adamovich; BYKOVA,  
M.G., red.; DEYEVA, V.M., tekhn.red.

[Vegetable growing; laboratory exercises] Ovoshchevodstvo;  
laboratornyi praktikum. Izd.2., perer. Moskva, Gos.izd-vo  
sel'khoz.lit-ry, 1960. 213 p. (MIRA 14:2)  
(Vegetable gardening)

137-58-2-4079

*BORUSHKO, M.O.*

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 259 (USSR)

AUTHOR: Borushko, M.O.

TITLE: The Mechanical Properties of a Chrome-manganese-copper Steel Recrystallized During Hot Deformation (Mekhanicheskiye svoystva khromomargantsovomeditoy stali, rekristallizovannoy pri goryachem deformirovanii)

PERIODICAL: Tr. Khar'kovsk. in-ta, 1957, Vol 11, pp 121-131

ABSTRACT: An investigation was made of the effect of recrystallization at 700-1150°C on the microstructure, mechanical properties ( $\sigma_b$ ,  $\sigma_s$ ,  $\delta$ ,  $\psi$ ), and critical embrittlement temperature ( $T_{br}$ ) of two test heats of a Cr-Mn-Cu steel containing 0.16 - 0.17 percent C, 0.78 - 0.85 percent Mn, 0.23 - 0.36 percent Si, 0.53 - 0.54 percent Cr, and 0.47 - 0.40 percent (sic!) Cu. The metal of the two heats had a different initial grain size. Specimens 28x28 mm in cross-sectional area, subjected to compression from a one-ton hammer, underwent deformations of 6-50 percent. It was found that the recrystallization threshold lies in the vicinity of 8-15 percent, the variations in grain size being

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137-58-2-4079

The Mechanical Properties of a Chrome-manganese-copper Steel (cont.)

relatively small. Up to the recrystallization threshold the magnitudes of  $\sigma_b$ ,  $\sigma_s$ , and  $\sigma_s/\sigma_b$  diminished, while  $\delta$  and  $\psi$  increased (the degree of deformation having little influence on strength properties). An interdependence of the recrystallization threshold and  $T_{br}$  was not established.

T.F.

1. Steel--Mechanical properties--Deformation effects    2. Steel--Deformation

Card 2/2

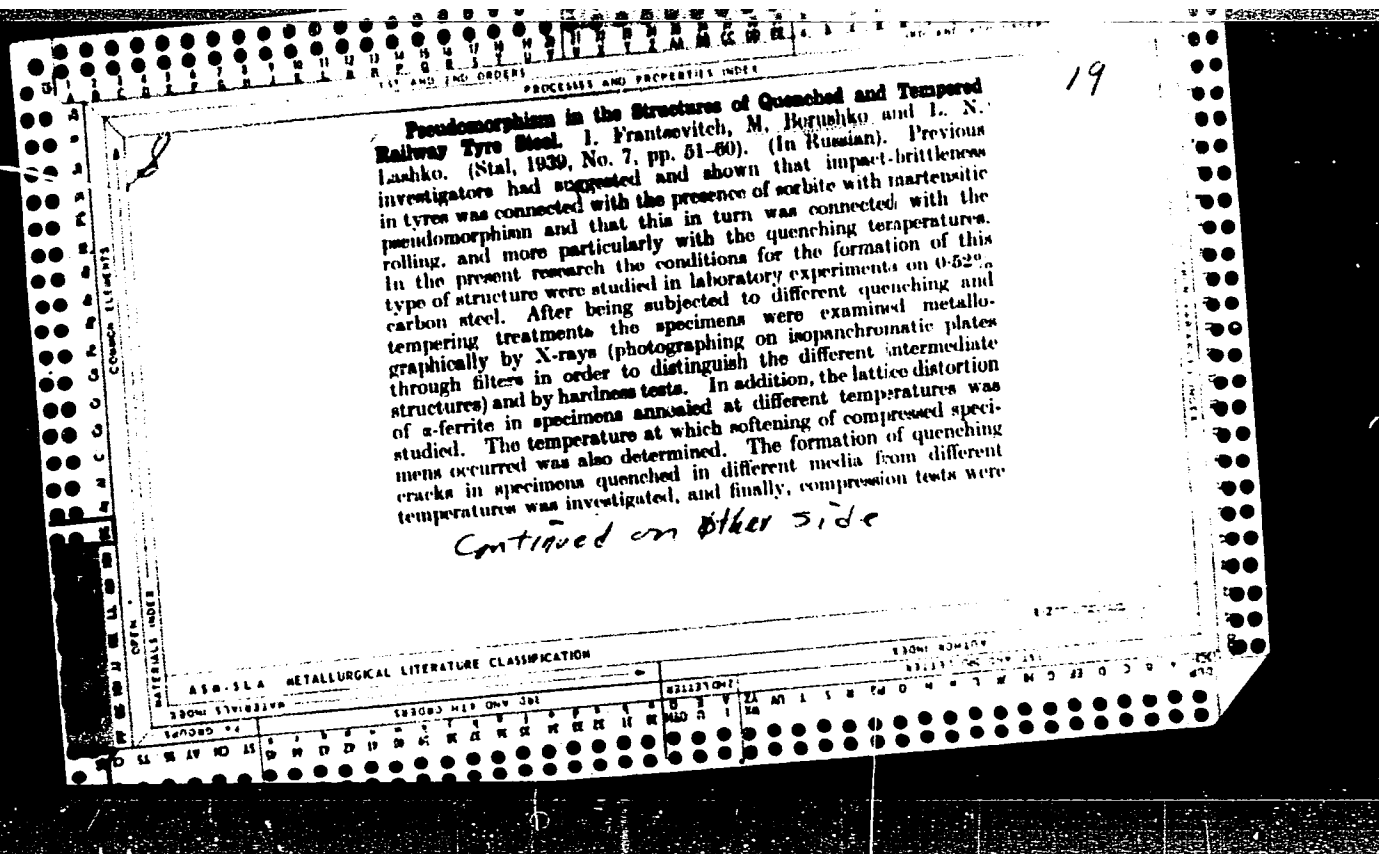
1ST AND 2ND ORDERS																									
PROCESSING AND PROPERTIES INDEX																									
<p><b>Theory of hardening and tempering of steel.</b> M. S. Borushko, N. P. Lashko and K. I. Smyslov, <i>J. Tech. Phys.</i> (U. S. S. R.) 8, 1897-1702 (1938).—Blocks of steel (C 0.62, Mn 0.76, S 0.023, P 0.014, Si 0.38%) were quenched at 800-1100° and annealed at one of 21 temps. between 100 and 700°. Their corrosion by 5% HCl after 72 or 96 hrs. was detd. The curve "corrosion-temp. of annealing" shows a flat min. at 100° (transition of tetragonal into cubic martensite) and 6 sharp max. and 6 sharp min. Since the corrosion increases with heterogeneity the latter must also have max. and min. The heterogeneity presumably increases owing to sepn. of C atoms or carbide mols. and decreases owing to formation of cementite lattice from these mols. Both these effects and the coagulation of cementite may explain the max. and min. found. Martensite is corrosion-resistant and therefore homogeneous. J. J. Bikerman</p>																									
<p>ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																									
<p>1ST AND 2ND ORDERS</p>																									

1ST AND 2ND ORDERS		PATENTED AND PROPERTIES INDEX	
<p>17</p>		<p>2</p>	
<p>the structure of iron oxides obtained at moderate temperatures. M. A. Borusko and N. P. Lashko. <i>J. Phys. Chem. (U. S. S. R.)</i> 11, 737-42 (1978). It is shown that <math>\gamma\text{-Fe}_2\text{O}_3</math> is the main component of Fe oxides obtained at moderate temp. A corrosion of Fe in hot gases gives <math>\alpha\text{-Fe}_2\text{O}_3</math>. Not all Fe particles in the surface layers are corroded. Single inlets having a crystal lattice of Fe remain surrounded by a mass of oxides. <math>\alpha\text{-Fe}_2\text{O}_3</math> is the main oxidation product component of worked Fe. Hydroxides were found not only after a prolonged oxidation, but also after a short etching (5-7 min.) of the deformed samples in a 15% soln. of <math>\text{HNO}_3</math>. On scraping off the surface layers of oxides from Fe the removed particles were subjected to an intensive plastic deformation, but they remained undeformed. Twelve references. W. R. Henn</p>			
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>			
<p>140000 04</p>		<p>140000 04</p>	
<p>140000 04</p>		<p>140000 04</p>	

*Bc*

Structure of iron oxides obtained at low temperatures. M. S. ROSENBERG and N. F. LARSON (J. Phys. Chem., 1964, 68, 737-742).  
—X-Ray patterns of oxide films on Fe specimens of commercial steel had Fe show that in H<sub>2</sub>O or wet air γ-Fe<sub>2</sub>O<sub>3</sub> is formed; in HNO<sub>3</sub>, α-Fe<sub>2</sub>O<sub>3</sub> hydroxide, and in dry gas α-Fe<sub>2</sub>O<sub>3</sub> is obtained. J. J. B.

ASTM-A1A METALLURGICAL LITERATURE CLASSIFICATION



made to determine the plastic properties of sorbitised specimens with both a regular sorbitic structure and a sorbitic structure with martensitic pseudomorphism. A detailed discussion, based on the experimental data, is presented of the quenching and tempering process with reference to the genesis of pseudomorphous formations in the tempered structures. Apart from the fundamental causes for the transformation of martensite into a heterogeneous mixture of  $\alpha$ -ferrite and cementite, heterogeneities in the metal and oxygen content are regarded, under certain conditions of heat treatment, as factors favouring the occurrence of pseudomorphism in sorbite and of shrinkage cracks. The stages of the transformation of the martensite lattice were determined by X-ray analysis and also demonstrated by corrosion tests. The need to raise the temperature range of heat treatment (maximum temperature about 950 °C.) for the development of sorbite with the object of avoiding pseudomorphism and consequent brittleness is pointed out.

**X-Ray Method for Rapidly Determining the Gas Evolution During the Melting and Teeming of Steel.** I. N. Frantsevich, M. S. Borzhevoi, N. A. Kovalenko, N. F. Lashko, P. S. Rudyukovich and A. S. Tkachev. (Zavodskaya Laboratoriya, 1939, No. 9, pp. 953-956). (In Russian). Work carried out to adapt the X-ray method, suggested a few years ago, for the determination of the nature of the gas evolution during the melting of steel is described. A suitable composite, horizontal, chill mould was developed in which samples of metal were cast. Solidification was very rapid, the ingot being stripped 20 sec. after pouring. It was then cooled in water and X-rayed, the exposure being 16 sec. Rapid development enabled the fixed negative to be obtained 4 min. after the pouring of the sample. Experiments on larger ingots showed that while the general appearance of the gas inclusions was similar to that in the small test samples their absolute size was greater in the former ingots than in the latter. By way of illustration a series of X-ray photographs of samples taken at various stages in the course of melting and teeming a heat are reproduced. In conclusion a project of an open-hearth shop X-ray laboratory to carry out the above process is outlined with reference to a detailed plan.

**FRANTSEVICH, I.N.; BORUSHKO, M.S.; BARKOV, V.N.**

**Mechanical properties of low-carbon and low alloy steel at low  
temperatures. Trudy Inst. Chern. met. AN USSR 3:115-125 '49.  
(MLRA 8:7)**

- 1. Chlen-korrespondent Akademii nauk USSR. (for Frantsevich)  
(Steel--Testing) (Metals at low temperatures)**

FRANTSEVICH, I.N., chlen-korrespondent; BORUSHKO, M.S.

Mechanical properties of low alloy steel at high temperatures and  
their recrystallization by heat treatment. Trudy Inst. Chern. Met.  
AN URSR 3:126-138 '49. (MLRA 8:7)  
(Steel—Heat treatment) (Metals at low temperatures)

*BORUSHKO, M. S.*

137 1957-12-24952

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 12, p 286 (USSR)

AUTHOR: Borushko, M. S.

TITLE: Recrystallization and Mechanical Properties of Hot-worked Medium-manganese Steel (Rekristallizatsiya i mekhanicheskiye svoystva goryacho deformirovannoy srednemargantsovistoy stali)

PERIODICAL: Tr. Khar'kovsk. politekhn. in-ta, 1957, Vol 9, pp 101-111

ABSTRACT: An investigation of the effect of the conditions prevailing in the hot deformation (D) of medium-manganese steel 30G<sub>2</sub> on its physical and mechanical properties. The original stock was rolled into sheets 17.6 mm thick. The temperatures at the beginning and the end of the rolling process were 1195 and 840°, respectively. In order to construct recrystallization (R) diagrams and establish the physical-mechanical properties along all R isotherms, the D of specimens (S) intended for the study of the recrystallized structure, was accompanied by D (under analogous conditions) of an additional series of blanks from which subsequently S's were prepared for static and dynamic tests. The test specimens were prepared in the form of bars 56 mm in length and 17.6 x 13 mm<sup>2</sup> in cross-section. The D of the blanks was

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137-1957-12-24952

Recrystallization and Mechanical Properties of Hot-worked (cont.)

carried out in an impact testing machine with a free falling weight, at a D rate of 10 m/sec and at temperatures between 750-1150°, the degree of D in the interval being 3-30 percent. A method for the separation of recrystallized austenite grains was developed, and a spatial R diagram was constructed on the basis of the data obtained. The connection between the structure of recrystallized metal and its mechanical properties was established. It is shown that, compared with the  $\sigma_b$  of non-recrystallized metal, the  $\sigma_b$  of recrystallized metal diminishes up to the threshold of R. The threshold of R is manifested on the  $\sigma_b$  isotherm by a step-like rise. During hot R of steel any subsequent increase in the degree of D affects the value of  $\sigma_b$  only slightly. With various isotherms of hot R, the curves showing the change in  $\sigma_s$  are seen to depend on the degree of D in a manner identical to that of  $\sigma_b$ . The indices of plasticity vary with the degree of the D of metal during hot R in a sense opposite to that of the strength characteristics. The values of  $a_k$  fully confirmed the changes in the plasticity of recrystallized metal as a function of the degree of hot D. An indispensable condition in the determination of the thresholds of R by means of mechanical-property tests is the complete consistency between the volume of metal under stresses produced during the destruction

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137-1957-12-24951

Recrystallization and Mechanical Properties of Hot-worked (cont.)

of the S in the process of mechanical tests, and the volume of deformed metal which exhibits structural homogeneity. Recommendations are given for improvement of precision in the conditions of rolling the steel under investigation. Bibliography: 17 references.

L. G

1. Manganese steel-Mechanical properties
2. Manganese steel-Physical properties
3. Manganese steel-Effects of hot rolling

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SOV/124-58-3-3536

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 3, p 133 (USSR)

AUTHOR: Borushko, M. S.

TITLE: Mechanical Properties of Chrome-manganese-copper Steel  
Recrystallized Upon Hot Deformation (Mekhanicheskiye  
svoystva khromo-margantsovo-medistoy stali, rekristal-  
lizovannoy pri goryachem deformirovanii)

PERIODICAL: Tr. Khar'kovsk. politekhn. in-ta, 1957, Vol 11, Nr 2,  
pp 121-131

ABSTRACT: Bibliographic entry.

Card 1/1

BORUSHKO, N.

LADUR, M., zasluzhennyy deyatel' iskusstv RSFSR; GONCHAROV, A.; khudozhnik;  
VAKS, I., dots.; GONCHAROV, M., inzh.; BORUSHKO, N., khudozhnik-  
arkhitektor; PAKHOMOV, V., student; BELOKOPYTOV, A., student

Beauty in labor. Tekh.mol. 28 no.7:2-4 '60. (MIRA 13:8)

1. Leningradskoye vyssheye khudozhestvenno-promyshlennoye uchi-  
lishche (for Vaks, Pakhomov, Belokopytsov).  
(Aesthetics) (Color--Psychology)